

# **WACA/WSDOT Meeting**

## **Minutes for Thursday, March 6, 2008, Meeting**

### **Attendees:**

Bruce Chattin, WACA	Richard Henderson, Wilder	Tom McGraw, Lafarge
Mike Polodna, WSDOT	Craig Matteson, Central Premix	Allan Kramer, Lehigh
Dave Heizenrader, WSDOT	Dick Boss, Cadman	Tamson Omps, Glacier NW
Mo Sheikhezadeh, WSDOT	Kevin Wolf, Glacier NW	Cathy Nicholas, FHWA
Kurt Williams, WSDOT	Neil Guptill, Glacier NW	Zack Swanson, Grace
Jim Walter, WSDOT	Steve Ford, Miles Sand & Gravel	Jim Tobin, NW-ACPA
Masha Wilson, WSDOT	Rich Rietcheck, Boral	Michael Rodriquez, Cemex/Rinker
Gary Albert, Martin Marietta	Felix, Chandra, Stoneway	Dave Neel, Boral
		Andy Marks, Puget Sound Concrete Spec Council

**Location:** WSDOT HQ Mats Lab, Tumwater, WA.

### **Next WACA Meeting Date:**

*Wednesday, June 18, 2008, at WACA's Office in Des Moines, 9:30 AM – 12:00 Noon*

### **Future WACA Meetings Dates:**

*Wednesday, September 17, 2008, at WSDOT HQ Mats Lab, Main Conf Room, 9:30 AM – 12:00 Noon*

### **REQUESTED LINKS:**

WSDOT Web site for online Forms (WSDOT Forms Management):

<http://www.wsdot.wa.gov/forms/>

WSDOT Web site for Engineering Publications On-Line Technical Manual Library:

<http://www.wsdot.wa.gov/publications/manuals/index.htm>

**Meeting Minutes are available at:** <http://www.wsdot.wa.gov/biz/mats/>

### **Issue: Performance Specifications for Concrete Mix Designs - Mo Sheikhezadeh Issue:**

Develop performance specification parameters for concrete that can be developed into specifications.

*03/06/2008 – Mo S. handed out copies of the Draft Concrete Performance report and reviewed some of the points covered in the report specifically the new classes of concrete, and testing requirements. Mo also noted that there is concern within WSDOT that concrete producers in outlying areas will not be able to meet testing requirements for performance concrete, so this specification will initially be introduced as an alternative to the current standard specifications. The group discussed the testing requirements in the report and noted that the high testing costs make it costs prohibitive to run the test for small quantities of concrete. There needs to be a balance between the testing requirements required for concrete, for example sidewalk concrete*

*does not need all the testing required that bridge deck concrete needs. Dick B. suggested that there needs to be a separate committee meeting to discuss all the concerns with the proposed Concrete Performance report, so the requirements can be streamlined. Kurt W. and Bruce C. agreed a subcommittee could be formed and Kurt asked that industry representatives interested contact Bruce, or Kurt and the names will be forwarded to Mo to start the process moving.*

***Action Plan: Need WACA/WSDOT subcommittee group formed to address issue and update group at next meeting – Mo S.***

**Issue: Degradation for concrete Aggregate/Base Course – Jim Walter.**

*03/06/2008 – Jim W. noted that he had no new information to report at this time.*

***Action Plan: Continue to give updates to WACA at Monthly Meetings. – Jim W.***

**Issue: Increase Amount of GGBFS in Concrete – Rob S./Kurt W./Jim W.**

*03/06/2008– Kurt W. noted that he has had discussions with Rob Shogren with Lafarge on using 30% and 35% slag on a test section in Spokane on SR 395, (SR 395, Freya to Farewell) and he is waiting for the contractor to officially propose the test section to the Project Engineer. The goal is to get a machine test section with 30% and 35 % slag in the concrete pavement.*

***Action Plan: Remove from Agenda and Update group as needed on Issue: – Rob S./Kurt W..***

**Issue: Truck Scales – Gary A.**

*03/06/2008 – Gary A. said he has met with the AGC Admin Team about the proposed update to Section 1-09.2 Weighing Equipment. Current proposal to the AGC Admin Team focused on the following: 1) Scaleman's Daily Report, 2) Tare Weight Requirements, and 3) scale verification checks. Gary noted that 1) the scaleman's report could be eliminated as it is a hold over form, 2) the proposed tare weights be changed from twice daily to once every 60 days, and 3) scale verification checks be reduced from once per day to once per project and the Project Engineer can request a second scale verification check. And if the scale is within limits WSDOT will pay the costs of the Project Engineer requested verification check and the contractor will pay if the scale is out of specification. Cathy N. noted she supported keeping the Scaleman's Daily Report because it is a independent check and the form is needed for audits of the project, but agreed with weighing trucks at less frequency the currently required is reasonable. Cathy noted that the next ACG Admin Team meeting is 2 weeks from now and more information will be available after that meeting.*

***Action Plan: Update group at next meeting – Gary A.***

**Issue: Specification: 9-03.9(2) Shoulder Ballast and 9-03.17 Foundation Material Class A and Class B. – Gary Albert**

*Issues:*

1.) *Its called Shoulder Ballast but where is it used? In looking at hundreds of project specification, I [Gary Albert] don't recall seeing Shoulder Ballast spec'd more than 3 times.*

2.) *Foundation Class A Material has both an 1 1/2" sieve and 1 1/4" sieve requirement (duplication?) and couldn't Shoulder Ballast's gradation work instead? I [Gary Albert] have seen both Class A and B spec'd numerous times but never used as spec'd. When it is needed, we always ask to get a 2 1/2"x 3/4" Railroad Ballast substituted as an alternate or a 2"x 3/4", 2"x 1 1/4" or 4"x 2" substituted.*

*03/06/2008 – Gary A. reviewed the information proposed at the last meeting an noted that he has only used shoulder ballast once for a WSDOT project around guardrail and in comparing the sieve requirements for shoulder ballast and foundation class A and B asked what is shoulder ballast used for and why does Foundation Class A and B have both the 1 1/2 inch and 1 1/4 inch screens. Gary also recommended the name be changed for shoulder ballast to crushed ballast if the material is kept in the specifications as it is typically not used for shoulder work. Recommendation remains for WSDOT delete either the 1 1/2 inch screen from Class A and 1 1/4 inch screen from Class B or delete the 1 1/4 inch screen from Class A and the 1 1/2 inch screen from Class B. Jim W. to check into what WSDOT uses for Shoulder Ballast and Foundation Class A and B, and then look at proposal to remove sieves and rename shoulder ballast.*

Sieve Size	Std Spec 9-03.17 Foundation Class A	Std Spec 9-03.17 Foundation Class B	Std Spec 9-03.9(2) Shoulder Ballast
2-1/2	98-100	95-100	100
2	92-100	75-100	65-100
1-1/2	72-87	30-60	
1-1/4	58-75	0-15	
1			
3/4	27-47	0-1	40-80
3/8	3-14	--	
U.S. No. 4	0-1	--	5 max.
U.S. No. 100			0-2
% Fracture			75 min

**Action Plan: Update Group at next WACA meeting – Jim W./Gary A.**

**Issue: Use of prepackaged concrete: Kurt W.**

Use of prepackaged concrete with hand mixing for fence posts, pipe plugs, pipe collars, Ref: Section 6-02.34(B)

*03/06/2008 – Kurt W. noted that he is getting a lot of request to use prepackaged concrete and hand mixing for items such as fence post and pipe plugs and reviewed the proposed WSDOT Construction Manual language below. Kevin W. asked if there is anything to prevent mobile*

*mixers from being used under small quantities. Kurt noted that the construction manual sets limits for small quantities. [Also, if the contractor wants to mix concrete on the job, Standard Specification Section 6-02.3(4)B Jobsite Mixing, requires the contractor to make the request in writing and receive written approval from the Engineer]. Kurt also noted that there is an ongoing discussion within WSDOT to update the grout requirements in the Std Specifications so they are consistent and a move to clarify Standard Plans that state Class 3000, on whether Commercial Concrete is acceptable.(see Draft Construction Manual Language below:)*

**Draft Change:**

**Construction Manual 9-5.2C Sampling and Testing for Small Quantities of Materials**

The Project Engineer may elect to accept small quantities of materials without meeting minimum sampling and testing frequencies using the following criteria.

An item can be accepted as a small quantity if the proposed quantity for a specific material is less than the minimum required frequency. For mainline paving, less than one-half the required frequency as defined in Chapter 9-5.7 of this manual.

Materials that will not be considered under the small quantity definition are:

Structural Concrete

Some issues that the Project Engineer may consider prior to use of small quantity acceptance are:

Has the material been previously approved? Is the material certified? Do we have a mix design or reference design? Has it been recently tested with satisfactory results? Is the material structurally significant?

Small quantity acceptance could be visual, by certification, or other methods. Acceptance of small quantities of materials by these methods must be documented. Documentation of materials under these methods must be provided by the Project Engineer or representative accepting the material. For visual documentation, an entry should be made in the project records as to the basis of acceptance of the material, and the approximate quantity involved.

The small quantity acceptance may be used for any quantity of the following uses:

Curbs and Sidewalks, Driveways, Road approaches, Paved ditches and slopes

**Where jobsite mixing of concrete occurs in accordance with Standard Specification Section 6-02.3(4)B, Jobsite Mixing, small quantity acceptance may also be used for acceptance of prepackaged concrete meeting the requirements of ASTM C 387, The prepackaged concrete bag will state on the bag that the bagged concrete meets the requirements of ASTM C 387.**

**Action Plan: Issue Complete for Now, Update Group as Required: –Kurt W.**

**Issue: Acceptance Test for pumped concrete – Bob R.**

*03/06/2008 – Mo noted that he was willing to raise the upper limit for air to 8% and keep the lower limit at 4%. Group commented and noted that they are not interested in going up in air, but going down. Jim W. noted that statistical acceptance of concrete may help as it allows some test to be out of specification and adjust the pay factor accordingly. Group discussed and it was noted that this is really a producer problem as concrete producers are taking the risk from the contractor and the owner should expect a certain amount of air at the point of placement, with differing view points noting that this should be a state or owner issue in requiring the contractor to adjust placement methods, etc.. [Kurt spoke to Bob Raynes, on March 13, 2008, and discussed this issue and Bob R. said he would like to discuss further within WACA and make a proposal to WSDOT on this issue at the next WACA meeting.]*

**Action Plan: WACA needs to make a proposal to WSDOT on this issue: Bruce C/Bob R/Mo S**

### **New Issue: Update to Section 9-23.6, Admixtures for Concrete: Kurt W.**

Below is the proposed update to Std Spec Section 9-23.6 Admixtures for concrete. This update will bring the Standard Specifications inline with the AASHTO M 194 and ASTM C 494 specifications. AASHTO M 194 and ASTM C 494 are the same specification, even though AASHTO still retains the AASHTO M 194 number.

*03/06/2008 – Kurt noted that the current admixture specification in the Standard Specifications is outdate and proposed changes to update Section 9-23.6 of the Standard Specifications to match the current ASTM and AASHTO specifications for admixtures. The group discussed briefly and Jim Walter proposed adding the Type to the admixture description so the admixtures can be separated better in the QPL. Dick B. suggested just citing ASTM C 494 and not having a table in the Std Specs. Kurt noted that it is helpful for construction inspectors to have the information in the Std Specs versus having to find the information in the ASTM. See the proposed updated specification below:*

#### **9-23.6 Admixture for Concrete**

Admixtures for use in concrete shall meet the following Specifications:

<b>Admixture</b>	<b>Specification</b>	
Air-entraining	AASHTO M 154	ASTM C 260
Type A - Water Reducing	AASHTO M 194 Type A	ASTM C 494 Type A
Type B - Retarding	AASHTO M 194 Type B	ASTM C 494 Type B
* Type C - Accelerating	AASHTO M 194 Type C	ASTM C 494 Type C
Type D - Water Reducing and Retarding	AASHTO M 194 Type D	ASTM C 494 Type D
* Type E - Water-Reducing and Accelerating	AASHTO M 194 Type E	ASTM C 494 Type E
Type F - Water Reducing, High Range	AASHTO M 194 Type F	ASTM C 494 Type F
Type G - Water Reducing, High Range and Retarding	AASHTO M 194 Type G	ASTM C 494 Type G

\* Accelerating admixtures are only allowed for use in the following applications: In Controlled Density Fill (also known as Controlled Low Strength Material) in accordance with Section 2-09.3(1)E Backfilling, in Portland Cement Concrete Pavement in accordance with Section 5-05, and in Section 5-05.3(1) Concrete Mix Designs for Paving.

In addition to the above Specifications, admixtures proposed for use shall contain less than one percent chloride ion (Cl-) by weight of admixture and only non-chloride accelerating admixtures shall be used.

Acceptance of admixtures will be based on Manufacturer's Certificate of Compliance.

If required by the Engineer, admixtures shall be sampled and tested before they are used.

Samples shall be submitted for testing 10 days prior to use.

***Action Plan: Issue Complete***

### **New Issue: Draft Pervious Concrete Sidewalk Specification: Jeff U.**

Need comments and recommended revisions to draft Pervious Concrete Sidewalk Specification

03/06/2008 – Kurt passed out copies of the draft Pervious Concrete Sidewalk Specification and noted that Jeff Uhlmeyer was unable to attend the meeting. Since Jeff Uhlmeyer was unable to attend Kurt volunteered to pass on comments on the specification. Craig M. noted that the specification didn't specify what base material is required under the pervious concrete sidewalk. Andy M. noted that water should drain through or be stored in the pervious concrete. The Group discussed the need for having a base material under the pervious concrete sidewalk with it being noted that storing water in the pervious concrete sidewalk will cause problems on the Eastern side of the state with Freeze thaw issues. Bruce C noted that there is an updated ACI specification for pervious concrete [ACI 522.1-08 Specification for Pervious Concrete Pavement, published in March 2008] that should be used in updating WSDOT's pervious concrete sidewalk specification. Comments were emailed to Jeff Uhlmeyer on March 12, 2008. Copy of the Draft Pervious Concrete Sidewalk Specification are attached at the end of these meeting minutes.

**Action Plan: Update Group at Next WACA meeting: Jeff U.**

**New Issue: Commercial Concrete: Rich Rietcheck.**

Commercial Concrete and what materials can be used in commercial concrete.

03/06/2008 – Rich R. asked if the Boardman Fly Ash Class C was acceptable for use on WSDOT projects and noted it was on the QPL. Jim Walter said that if the fly ash is approved on the QPL, then it is okay to use.

**Action Plan: Issue Complete**

**New Issue: Materials Testing Procedures: Dick Boss.**

WSDOT Materials Manual test procedures: Who has input into the WSDOT test procedures, and why can't the ASTM or AASHTO test procedure not used verbatim in the WSDOT manual.

03/06/2008 – Dick Boss asked who has inputs into the WSDOT Materials Manual test procedures and why can't ASTM or AASHTO test procedures be used? Jim Walter explained that the WSDOT test procedures are written with input from within WSDOT, such as trainers and testers. And, since the ASTM and AASHTO test procedures typically have 2 or 3 optional test procedures within each test, WSDOT chooses one of the test procedures. Jim noted that WSDOT is open to input on the test from outside WSDOT. Dick noted that each test costs money and each change to a test procedure by WSDOT increases the costs of running the tests. Jim replied that WSDOT uses ASTM and AASHTO test when ever possible, but can't publish ASTM and AASHTO test verbatim due to copy write issues and uses an modified version of the tests and the version is noted as a Field Operating Procedure (FOP) for the test. WSDOT alsouses Western Alliance for Quality Transportation Construction (WAQTC)[Website: <http://www.waqtc.org/index.htm> ] to help ensure some commonality within the Western States in test procedures. Dick noted it is hard to determine which WSDOT test are the same as the AASHTO or ASTM tests, and it would be helpful to know which WSDOT test are the same as the AASHTO and ASTM tests. Jim noted that Tom Baker [State Materials Engineer], is on a number of WAQTC and AASHTO subcommittees and as WSDOT notes problems or makes

*changes to procedures and Tom Baker carries this information back to the test owners, either WAQTC or AASHTO as proposed changes.*

**Action Plan: Issue complete unless comments are received on WSDOT Materials Testing Procedures: Dick B.**

## **Copy of Cement Concrete Sidewalk Specification Handout**

### **8-14 CEMENT CONCRETE SIDEWALKS**

#### **8-14.1 Description**

This section is supplemented with the following:

#### **Pervious Cement Concrete Sidewalks**

This work consists of constructing pervious cement concrete sidewalks in accordance with details shown in the Standard Plans and these Specifications and in conformity to lines and grades shown in the Plans or as established by the Engineer.

#### **8-14.3 Construction Requirements**

This section is supplemented with the following:

#### **Concrete Mix Design for Pervious Cement Concrete Sidewalks**

Section 6-02.3(2)A is supplemented with the following:

Coarse aggregate shall conform to Section 9-03.1(4) AASHTO grading No. 7 or No. 8. Fine aggregate shall not be added to the Pervious Cement Concrete Sidewalk mix design.

Alternate materials submittals will be considered based on experience and performance history from other projects.

The Contractor shall submit to the Engineer the following:

#### **Equipment**

A description of the equipment proposed for the placing of the concrete mixture, method of control, and manufacturer's literature together with the manufacturer's written instructions on adjustments and operating procedures. The literature shall show that the equipment meets all details of these specifications.

#### **Mix Design**

The Contractor shall provide a mix design in writing to the Engineer using form 350-040. No concrete shall be placed until the Engineer has reviewed the mix design.

### Proposed Placement Techniques

- a. A description of the placing and protection methods proposed prior to the construction of the test section, if concrete is to be placed in or exposed to hot or cold weather conditions.
- b. A detailed plan of the proposed paving pattern showing all planned construction joints. No deviation from the jointing pattern shown on the drawings shall be made without written approval of the Engineer.
- c. The intended procedure for curing the concrete using cover with polyethylene sheeting.

### Contractor Qualifications

A minimum of 2 completed projects with addresses, including each mix design and the project's unit weight acceptance data.

If the concrete placing Contractor and concrete producer have insufficient experience with pervious cement concrete sidewalk, the placing Contractor shall retain an experienced consultant (as qualified above) to monitor production, handling, and placement operations at the Contractor's expense.

### Test Panels

The Contractor is to complete two satisfactory test panels to demonstrate their ability to place pervious concrete sidewalk, before placing the rest of the pervious concrete sidewalk as required in the contract. The test panel is to be a minimum of 40 feet and a maximum of 80 feet long and shall conform to the dimensions and details shown in the plans. All concrete placed in the test panel shall be from a single ready mix truckload. The test panel shall be placed at any location specified to have pervious concrete sidewalk installed. The test panel shall be cured for 7 days and then inspected and tested for acceptance.

Test panels shall be tested for the following:

The test panel shall be acceptable if the pervious concrete material is placed to the lines and grades shown in the plans, if the material has sufficient infiltration capacity and strength. The Engineer shall be solely responsible for determining the acceptability of the test panel and is visually acceptable.

**Pervious Concrete Void Structure:** The Pervious Concrete Void Structure shall be tested in accordance with AASHTO T 121 and shall be between 15 and 21 percent.

The Contractor shall demonstrate the proposed jointing technique if wet cutting is used.

Upon acceptance of the test panel by the Engineer the rest of the remaining portions of work may be installed. If the test panel is determined to be unacceptable by the Engineer, the test panel shall be removed and disposed of in an appropriate manner. Payment for the removal, haul and disposal of the test shall be considered to be incidental to the bid item "Pervious Concrete Sidewalk."



## **Consistency**

Section 6-02.3(4)C is supplemented with the following:

For pervious cement concrete sidewalk the slump requirements do not apply, but the water/cementitious material ratio, by weight, shall be between 0.27 and 0.35. Pervious cement concrete with minimum cementitious materials exceeding 564 pounds per cubic yard generally meet this specified water/cementitious material ratio.

## **Finishing Equipment**

Compaction Equipment – Provide full width roller screed or vibrator plate compactor that is capable of producing at least 10-psi vertical pressure on the surface of the concrete.

Jointing Equipment – Joints in the pervious cement concrete sidewalk shall be wet or saw cut.

Hand Operated Equipment - Use shovels and muckrakes, not rakes, for hand spreading and distributing. Do not foul the concrete with foreign matter, nor disturb joint devices during such operations. Hand operated mechanical vibrators shall not be used.

Alternate Equipment and Methods – Any proposals to construct the pavement using different equipment or methods than specified shall be submitted 15 days in advance of the pre-paving conference.

## **8-14.3(2) Forms**

This section is supplemented with the following:

Sidewalk forms shall be held in place by stakes or other approved methods that do not extend above the formwork height. The pervious concrete material shall be finished by a plate compactor or roller screed that must be able to ride on top of the formwork uninhibited by formwork stakes.

## **8-14.3(3) Placement and Finishing Concrete**

This section is supplemented with the following:

Before placing the pervious concrete material, the forms and subgrade shall be surface wet. Any excess water standing in pools or flowing shall be removed prior to placing pervious concrete.

Before any pervious concrete material is incorporated into the work, the material shall be visually inspected for uniform mixing and the correct moisture content. Material which does not meet visual inspection shall be rejected and shall not be included in the work. If the Engineer determines that the material has excessive balls it will be rejected. Material that is excessively wet or dry shall be rejected. When the concrete is at the correct moisture content a small sample can be compressed by hand to form a shape which will remain after compression. With slight bouncing the compressed concrete will break in to several large pieces. The pervious concrete material shall be placed within 90 minutes of the introduction of the mix water, unless otherwise approved by the Engineer.

The pervious concrete shall be manually screeded to a minimum of ½-inch higher than the finished curb or form elevation. Care shall be taken to not incorporate foreign material into the concrete when placing and leveling. Spread the pervious concrete against and along the forms with care to avoid displacement of the forms. Use shovels or muckrakes, not rakes, for hand spreading and distributing. Do not foul the pervious concrete with foreign matter. Workers shall not walk in or compress the concrete material as they are placing and spreading the material.

After screeding the Contractor shall finish the edges of the sidewalk by hand. The Contractor shall use an edging tool to compress and round the edge of the plastic concrete. At the same time the forms shall be cleaned of any loose concrete.

After edge working, the concrete will be compressed with a vibrator plate compactor or roller or other approved finishing procedure. The vibrator plate compactor or roller shall span the entire width of the sidewalk and shall rest on the forms once the pervious concrete has compacted. Other procedures, if requested, shall be evaluated during the installation of the test panel(s). The Engineer shall be solely responsible for determining the suitability of other finishing techniques.

The vibrator plate compactor shall be capable of exerting a base pressure of 10 psi. The plate shall span the entire width of the bike land or sidewalk. The plate shall be between 12 to 20 inches long. The front edge of the plate shall angle or curve upwards. Different combinations of plate weight and vibration frequency may be used to achieve the 10 psi.

The roller shall have a weigh of 30 pounds per linear foot. The roller shall have a minimum diameter of 10 inches. The roller shall span the entire width of the sidewalk.

When the pervious cement concrete sidewalk abuts a cement curb or structure 3/8" premolded joint filler the full depth of the pervious cement concrete sidewalk shall be used as a separator.

Erect and maintain suitable barriers to protect the concrete from traffic or other detrimental trespass until the pavement is opened to traffic. If necessary provide watchmen. Repair or replace any part of the pavement damaged by traffic or damaged from any other cause shall be at the contractor expense.

#### **8-14.3(4) Curing**

This section is supplemented with the following:

Immediately after finishing the pervious cement concrete sidewalk it shall be covered with 6-mm thick (min) white polyethylene sheet as per Section 5-05(13)B, White Polyethylene Sheeting. Prior to covering, a fog or light mist of water shall be sprayed above the surface. The pervious cement concrete sidewalk shall remain covered and be allowed to cure undisturbed for a minimum of 5 days. The requirements of section 6-02.3(6)A shall apply.

#### **Acceptance of Portland Cement Pervious Cement Concrete Sidewalk**

##### **Unit Weight**

The Contractor will test, in accordance with WAQTC TM 2 and AASHTO T 121, at least one sample for each day's placement of pervious cement concrete to verify unit weight. Delivered unit weights are to be determined in accordance with AASHTO T 121. The measure is to be filled and compacted in accordance with AASHTO T 19M/T 19 paragraph 11, jiggling procedure. The unit weight of the concrete shall be +/- 5 pcf of the design unit weight.

#### Pressure Wash Testing

Before acceptance the contractor shall pressure wash the pervious concrete sidewalk. The pressure washing shall be completed by a washer working at a minimum of 3,000 psi and 1.0 gpm. The nozzle shall be held a maximum of 3 inches off the concrete. The Contractor shall wash the entire top surface of the pervious concrete sidewalk. Any sections of pervious concrete that breaks up, pits or does not infiltrate shall be removed and replaced with acceptable pervious concrete. The approximate minimum infiltration rate required is 10 inches per hour. The Engineer shall be solely responsible for determining the acceptability of the concrete after pressure washing.

#### **8-14.4 Measurement:**

This section is supplemented with the following:

Pervious Concrete Sidewalk will be measured by the square yard of finished surface and will not include the surface area of the sidewalk ramps.

#### **8-14.5 Payment**

The first paragraph of Section 8-14.5 is supplemented with the following:

Payment for "Pervious Conc.Sidewalk", per square yard.

The second paragraph of Section 8-14.5 is revised to read:

Payment for excavation of material not related to the construction of the sidewalk but necessary before the sidewalk can be placed, when and if shown in the Plans, will be made in accordance with the provisions of Section 2-03. Otherwise, the Contractor shall make all excavations including haul and disposal, regardless of the depth required for constructing the sidewalk to the lines and grades shown, and shall include all costs thereof in the unit Contract price per square yard for "Cement Conc. Sidewalk", "Cement Conc. Sidewalk with Raised Edge", "Monolithic Cement Conc. Curb and Sidewalk", "Pervious Conc. Sidewalk", or "Cement Conc. Sidewalk Ramp Type \_\_\_\_". "Cement Conc. Sidewalk Ramp Type \_\_\_\_"